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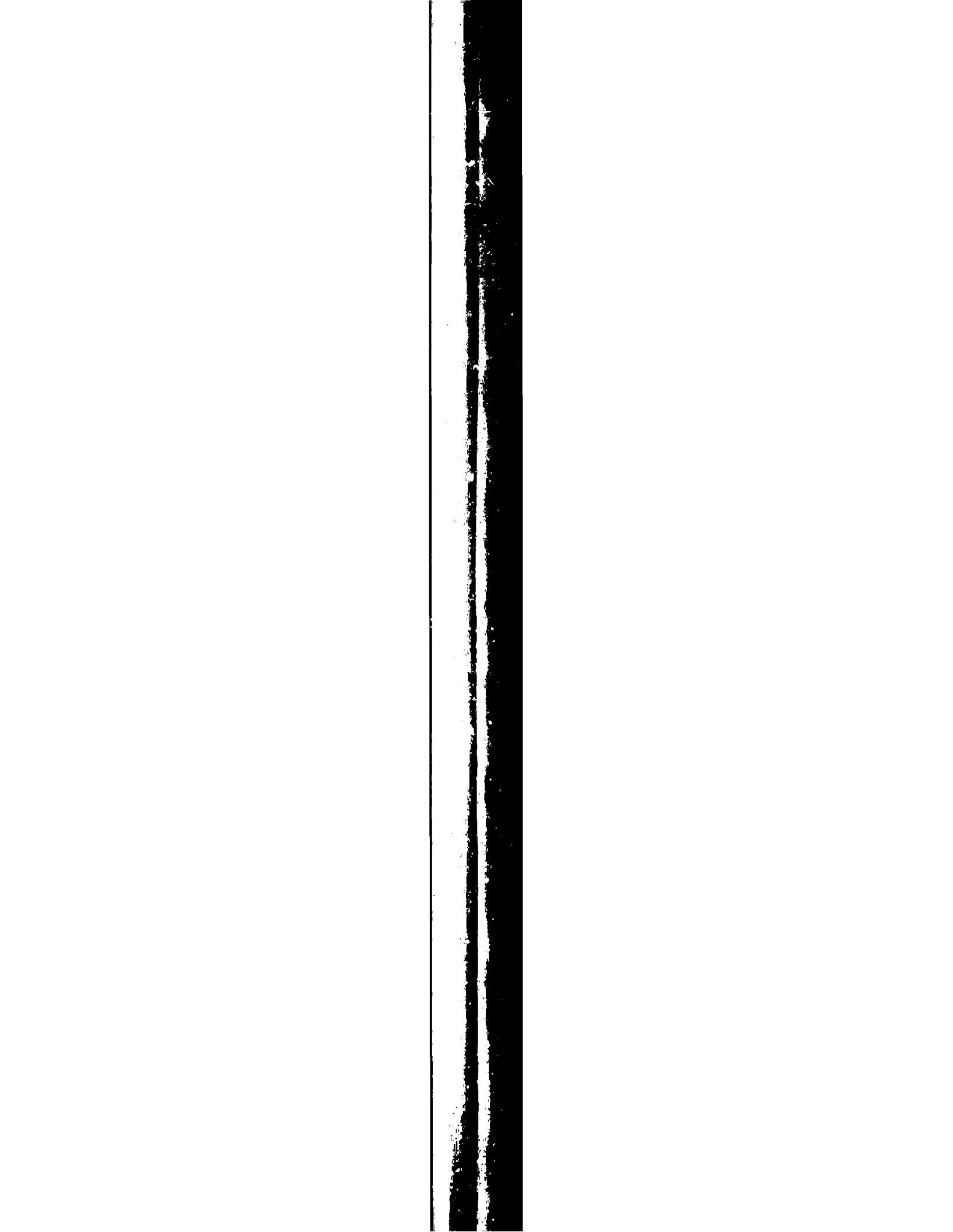
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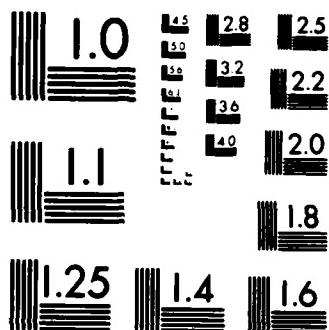
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# ON SCENE

## THE NATIONAL MARITIME SAR REVIEW

AD-A150 037

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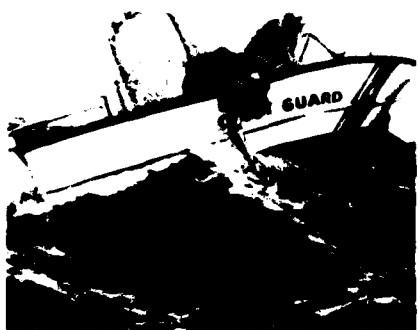
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# ON SCENE

## THE NATIONAL MARITIME SAR REVIEW



COVER; "Rescue at Sea" an original oil painting by Eric Gebhardt a volunteer artist with the Coast Guard Art Program.

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**RADM N. C. VENZKE**  
Chief, Office of Operations

**CAPT G. A. PENINGTON**  
Chief, SAR Division

**CDR A. E. TURNER**  
Editor

ON SCENE is a periodical published by the Commandant, U.S. Coast Guard, as a source of information concerning current and proposed procedures, as well as new developments in SAR. Articles contained herein are non-record and non-directive.

# LETTERS

Dear ON SCENE Editor,

Your brief mention about (U.S. Coast Guard) Auxiliarists in the Southwest (United States) being involved with preparations for the 1984 Olympics, failed to acknowledge the thousands of hours these Auxiliarists worked during the Olympic sailboat races.

Furthermore, thanks to the enviable weather here, Southwest Auxiliarists of the great 11th U.S. Coast Guard District work all year round on SAR. DON'T SELL US SHORT. We are alive and well on the West Coast.

By the way, just where is Washington, D.C.?

Yours truly,  
Eleanore D. Walt  
Flotilla 15-2 (District 11)  
USCG Auxiliary

ON SCENE apologizes for slighting 11th District Auxiliarists, and would like to acknowledge ALL members of the Coast Guard Team for their hard work which helped make the 1984 Olympics such a success. . . Washington, D.C. is east of HWY 101.

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## A LETTER FROM THE NEW SAR CHIEF

Beginning with this issue of ON SCENE we are charting a new course, and we have a few new people on board as well. Over the years since the publication was begun, ON SCENE has increasingly concentrated on subjects of interest to the Surface SAR crew. From now on we plan to make that focus explicit; editorial responsibility has been moved over to the Surface Facilities Branch, and they will be trying to provide more extensive coverage of surface SAR concerns and activity—cutters as well as small boat stations. As the new chief (since August) of the Search and Rescue Division, I plan to be an advocate for the traditional, humanitarian role of the Coast Guard: The Lifesavers. Having recently completed a tour of duty as a Group Commander, I know how important our SAR readiness is to the public we all serve, so I hope you will join me in boosting this most important of our

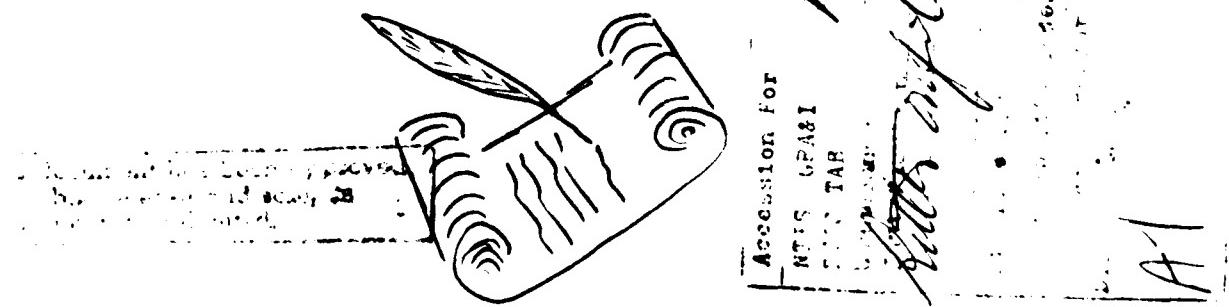
missions by giving yourself and your people a pat on the back for the great job you all do.

Captain Dave Wood is the new chief of the Surface Facilities Branch (G-OSR-1) and will have direct responsibility for the publication of ON SCENE; he came to Headquarters from command of a WHEC. To make it the best publication we can, he needs to hear from you; please send in stories, articles, suggestions, new techniques, photographs—anything that is SAR related and of general interest. We don't promise to publish everything, but the more material we have to choose from the better the magazine will be.

Keep up the good work! It's great to be aboard.

CAPT G. A. PENINGTON, USCG  
Chief, Search and Rescue Division

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# Hypothermia Response: Rescue, Examine, Insulate and Transport

By CDR A. M. "Doc" Steinman, USPHS / USCG

Over the past several years Search and Rescue (SAR) personnel have become increasingly skilled at managing accidental hypothermia. Coast Guardsmen, in particular EMTs, HSs, air crewmen and boat crewmen, have succeeded in treating and transporting an increasing number of patients suffering from this type of cold-injury. This article presents a brief summary of hypothermia and the recommendations for handling cold patients.

Hypothermia is simply a lowering of the body's normal temperature. Significant hypothermia begins at body temperatures below 95 degrees Fahrenheit, and severe hypothermia occurs at temperatures below 90° F. All body functions are slowed in severe hypothermia, including heart rate, breathing rate, metabolism and mental activity. A victim of severe hypothermia may display a variety of different signs and symptoms.

SAR personnel can both observe and measure the most important of these:

1. Pulse (slow to none);
2. Breathing (slow to none);
3. Mental status (slurred speech, unresponsiveness to pain or verbal stimulus, staggering walk or unconsciousness);
4. Cold skin; and
5. Low rectal temperature.

Severely hypothermic patients may have other problems that rescuers cannot easily detect but which may affect the patient's survival. These are:

1. Changes in blood chemistry;
2. Changes in oxygen and carbon dioxide content of the blood;
3. Irregular heart beats;
4. Dehydration; and
5. Differences in temperature between deep body tissues and superficial body tissues.

The primary goals for SAR personnel in the treatment and handling of hypothermic patients are to keep the patient alive, keep the patient from getting any colder (as opposed to rewarming him) and transporting the patient to a site of complete medical care.

Coast Guard rescue personnel may find useful the hypothermia treatment called: "**Rescue, Examine, Insulate and Transport.**"



## 1. Rescue Patient

Try to keep the patient in as horizontal a posture as possible. This will help to prevent shock and make it easier for the patient's heart to maintain blood flow to the brain. This posture is particularly important for patients recovered from cold water.

The pressure of the surrounding water on the patient's body acts in a small way like anti-shock trousers. When the patient is recovered from the water, this pressure is removed (like suddenly deflating anti-shock trousers), and the patient's blood pressure may drastically fall.

Such reaction has been suspected as a cause of post-rescue death among hypothermia victims. If the patient cannot be rescued in a horizontal posture (e.g. as in a rescue basket), get the patient into this position as quickly as possible once aboard the vessel or aircraft.



## 2. Examine Patient

a. Remember ABCs (Airway, Breathing, Circulation); make sure the patient has an open airway, is breathing and has a pulse. If there is a high probability that the patient is severely hypothermic—breathing and pulse may be slow, shallow and hard to detect. Therefore, take up to a full minute to measure these vital signs.

Hypothermia patients with ANY measurable pulse or respirations obviously do not require Cardio-pulmonary Resuscitation (CPR). If both pulse and respirations are absent, however, commence CPR. If the patient is found floating face-down in the water, assume he is a victim of cold-water near-drowning. Don't worry about hypothermia in this case; start CPR immediately.

b. Note mental status; evaluate the patient's level of consciousness, size of pupils, ability to respond if conscious, ability to walk if ambulatory and ability to think clearly. If any of these characteristics are abnormal, suspect possible severe hypothermia.

c. Look for other injuries; examine the patient for other possible injuries. Look especially for frostbite, soft tissue injuries, fractures, etc. Remember that, when affected by hypothermia, the patient's abilities to feel and respond to pain are depressed. A very careful search for these other injuries is thus necessary.

d. Check vital signs; measure pulse, breathing rate, blood pressure and TEMPERATURE. Core temperature measurements are essential (e.g. rectal temperature). If rectal temperature cannot be obtained, take an oral or axillary (armpit) temperature. These other sites are not nearly as accurate as the rectal temperature, but at least you'll know that the patient is no colder than the temperature recorded in the mouth or armpit (both of which are almost always lower than the rectal temperature).

In ALL temperature recordings, low-reading thermometers (down to 70° F) are essential. These are provided in all EMT kits. A normal household thermometer is not good enough, since it only goes to 94° F.

### 3. Treat Life-Threatening Emergencies

a. Commence CPR, if necessary; mouth-to-mouth or mouth-to-mask breathing is best because both provide heated, humidified oxygen to the patient. If an apparatus is available which can ventilate the patient during CPR with 100-percent heated, humidified oxygen, this would be even better.

b. Avoid Advanced Cardiac Life Support (ACLS); normal defibrillation and drug treatments are not useful in treating severe hypothermia, since the cold heart will not respond as expected. Worse, it can be damaged by repeated defibrillatory shocks. The administered drugs will not be metabolized or cleared normally by the patient's liver and kidneys. Instead, they accumulate in the body and become active as the body warms.

## ON SCENE

c. Control bleeding in the usual manner.

d. Control shock; evaluate the patient carefully, however, before using anti-shock trousers. Inflation of the trousers may expose the heart to a sudden rush of cold, acidotic venous blood isolated in the legs. Sudden temperature and/or pH changes in the heart have been suspected of causing cardiac arrest in severe hypothermia patients. Anti-shock trousers should only be used if the hypothermia patient's low blood pressure is due to blood loss or severe fluid depletion.

### 4. Manage Hypothermia Further

a. Handle the patient very gently to avoid causing cardiac arrest.

b. Remove wet clothing.

c. **Insulate** from further heat loss; this is one of the primary goals for rescue personnel in treating severe hypothermia. Do not expose the patient's skin to cold air, wind or spray, especially the down-wash created by helicopter rotor blades. If the patient needs helicopter transportation, wrap him well in blankets, a sleeping bag, etc., and be sure to insulate his head as well.

d. Add heat; the intent is NOT to rewarm the patient but rather to stabilize the core temperature and prevent further heat losses. Useful methods of heat addition are:

- Deliver heated, humidified oxygen or air by endo- or nasotracheal tube or by mask at a temperature of approximately 105° F. This treatment will prevent further respiratory heat losses (which are significant in hypothermia) and will help stabilize heart, lung and brain temperatures.

- Apply external heat (hot packs, heating pads, etc.) to the head, neck, trunk and groin. These sources of external heat MUST be insulated from direct contact with the patient's skin, in order to prevent thermal burns. Hypothermic skin is very sensitive to heat and is easily burned.

- Provide rescuer's body heat. When wrapped together in a blanket or sleeping bag, a rescuer can donate his body heat to a hypothermic patient. This technique is not without risk, however, since slow external rewarming in this manner may aggravate the frequency of abnormal heart beats.

This technique should only be used when there will be a long delay in getting the hypothermic patient to a site of complete medical care. In no case should hot showers or baths be used in the field because of the probability of producing changes in the patient's blood chemistry.

e. Postpone orally administered treatment; administer nothing by mouth until the patient is

conscious enough to cough and swallow effectively (i.e. fully conscious). Hot drinks are not effective in warming a severely hypothermic victim. They may be useful, however, in raising the morale of mildly hypothermic patients.

f. Administer intravenous (IV) fluids: five percent dextrose in water or five percent dextrose in normal saline. Do not use Ringer's Lactate because the hypothermic liver may not be able to metabolize the lactate normally.

Most hypothermic patients are dehydrated, so rapidly administer 300-500 cc's of dextrose in water or saline, followed by 75-100 cc's/hr. Do NOT administer cold IV fluids. Plastic IV bottles can easily be carried inside a rescuer's clothing (preferably next to the skin) to keep the fluids warm.

g. Transport to a medical facility as soon as possible

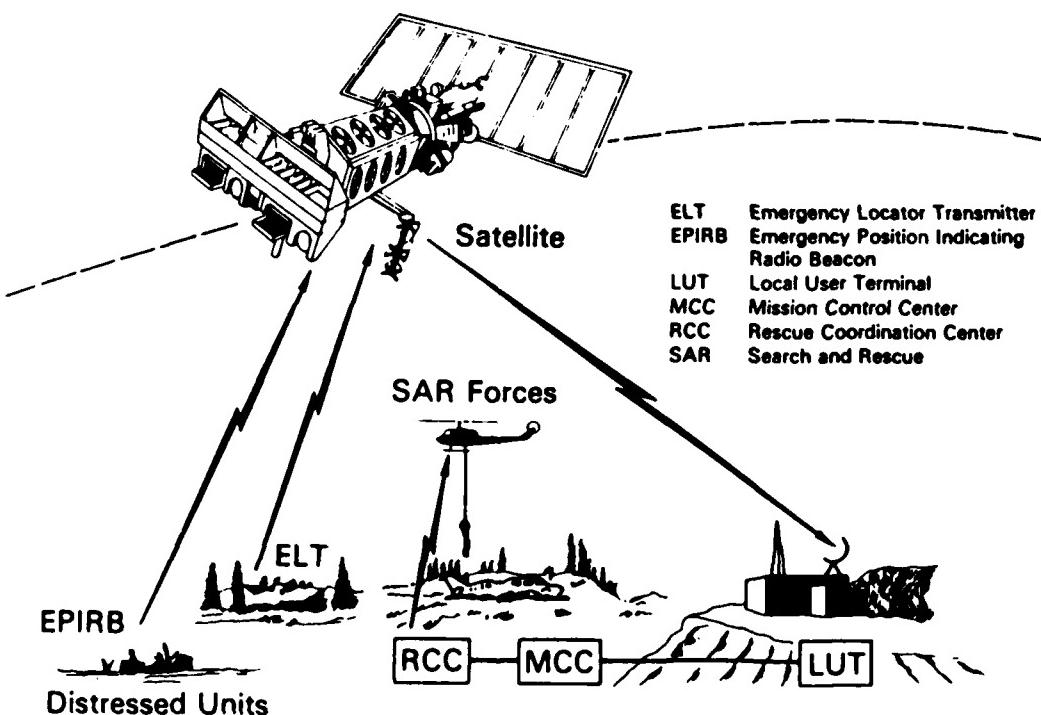
When reduced to the bare essentials, the above approach simply says: **"Rescue, Examine, Insulate and Transport"**

Notice that it says nothing about trying to actively rewarm the patient in the field or enroute, although it is time for the patient to rewarm on his own. Active Rewarming is part of the complete treatment of the hypothermia patient, which should only be attempted in a hospital, where all of the possible complications can be managed. These complications arise from changes in the body of the hypothermic patient which are not detectable to rescuers in the field.

When transport times are less than 15 minutes, adding heat and administering IVs are unnecessary. These treatments should, however, be used during longer transport cases.

# *Do You Know the Latest on EPIRBs and SARSAT?*

**By LCDR Dave Edwards, USCG SAR Liaison**



All U.S. Coast Guard vessels of the WPB class and larger now carry EPIRBs, and the Coast Guard encourages its personnel to promote EPIRB use on recreational and commercial vessels. More than 240 people had been saved or assisted, by July 1984, as a

direct result of SARSAT.

As important as EPIRBs and SARSAT are to the maritime community and the Coast Guard, how much do you really know about them?

## EPIRBs

The Emergency Position-Indicating Radio Beacon (EPIRB) is an inexpensive, passive device for transmitting maritime distress alerts. An overview of the three classes of EPIRB currently in use follows:

Class A EPIRBs are now carried aboard all Coast Guard vessels of the WPB class and larger. Coast Guard policy is to encourage the carriage of EPIRBs in general, and especially Class A and/or B EPIRBs aboard fishing and other uninspected vessels travelling more than 20 miles off the coast.

The Class C EPIRB is relatively new in the field and may suffer a low level of awareness among its potential users and our SAR forces. (A special thanks goes to CDR Bridges of Air Station Savannah for monitoring this concern.)

The Class C EPIRB was first discussed in Commandant's Notice 16123 (23 JAN 80) and was reissued as an enclosure to Commandant's Letter 16123 (29 FEB 84), which was sent to all Coast Guard districts (osr). The general signal characteristic is described by this excerpt from the COMDTNOTE:

CLASS	FREQUENCY	REGULATIONS	DETECTION
A	VHF AM 121.5 & 240.3 MHz	Float free; required on vessels inspected for ocean and coastal trade the routes of which are more than 20 miles from harbors of safe refuge.	SARSAT & high altitude A/C
B	VHF AM 121.5 & 243.0 MHz	Voluntary; for vessels more than 20 miles off the coast	SARSAT & high altitude A/C
C	VHF FM Ch. 16 (156.8 MHz), then shift to CH 15 (156.75 MHz) for locating	Voluntary in coastal waters within 20 miles; designed for recreational boaters	VHF shore stations

"The VHF-FM (Class C) EPIRB transmits a brief (1.5-second) alert signal on Channel 16 (156.8 MHz) to call attention to a distress. It then transmits a longer (15-second) locating signal on Channel 15 (156.75 MHz) to allow homing or direction finding. Both signals repeat periodically, and both are designed after the International Two-tone Alarm Signal (alternating tones of 2200 Hz and 1300 Hz lasting 250 milliseconds each).

The same COMDTNOTE on the Class C EPIRB directed two specific actions:

(a) District and unit commanders will insure that all radio watch-standers, boat coxswains and air crewmen are familiar with the radiotelephone alarm signal described above.

(b) District commanders will insure that all VHF-FM Direction Finders and Homers installed on shore, vessel and aircraft units are crystallized to operate on VHF-FM Channels 16 and 15 no later than 1 May 1980.

The Class A, B and C EPIRBs' potential for false alarms is a growing concern within the Coast Guard. The aviation equivalent to the EPIRB—the Emergency Locator Transmitter (ELT)—has an

extremely poor track record in this area. Around 98 percent of all ELT activations are non-distress.

While the EPIRB does not have the same engineering problems (i.e. crash activation sensor, mounting etc.), many EPIRB users, like ELT users, may be unaware that false activations can quickly overburden SAR resources. They may also be unaware of what steps they can take to minimize false alarms (i.e. proper handling and storage, looking for the light that indicates the EPIRB is operating, listening to a radio on 121.5/243.0 etc.).

Various efforts have been made to educate the EPIRB-user community. The educational approach offers great promise for keeping false activations under control, but it does require periodic follow-up. All Coast Guard personnel are encouraged to promote EPIRBs and their correct use.

## SARSAT

EPIRB use is directly affected by the project titled Search and Rescue Satellite-Aided Tracking (SARSAT). This international project has proven that satellites can be used to detect distress alerts AND to determine position from Class A and B EPIRBs. (Class

C EPIRBs operate only on VHF FM, not on SARSAT's VHF AM.)

Even though SARSAT is not fully developed and should not be considered operational, it frequently plays a key role in many operational SAR decisions. As of July 1984, over 240 people had been saved or

assisted as a direct result of SARSAT. After these successes will come more public awareness and, most likely, expanding growth in the use of EPIRBs.

Questions and requests for more specific information can be directed to COMDT (G-OSR-4), LCDR Dave Edwards, (202) 426-1933.

## Search And Rescue Queuing Model

SARQ is a planning tool for analyzing a unit's readiness posture. Historical SAR activity is used to simulate a station's performance in responding to distress calls under a variety of readiness conditions. The results give a Station CO or District planner the basis for comparison to choose a readiness posture which would provide the most effective SAR coverage.

The first step in the analysis is to retrieve information from the SAR data base, the place where all the Assistance Reports end up. The SARQ analysis examines this data for certain characteristics—annual

readiness states to be examined are decided upon, the SARQ computer program is ready to simulate the operation of a SAR station.

### STATION SEA URCHIN

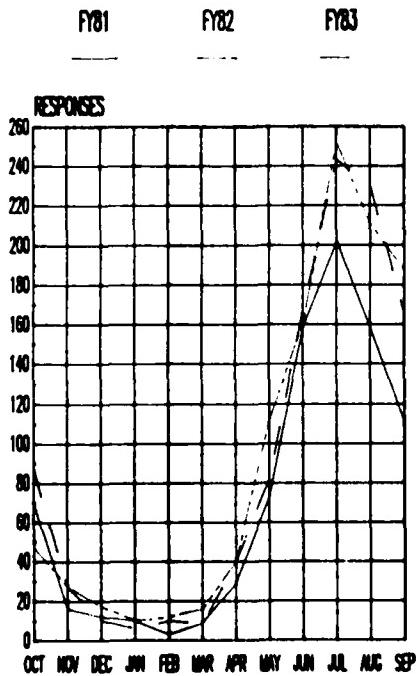


Fig 1 MONTH

caseload change (Fig. 1), peak and non-peak seasons (Fig. 2), weekend vs. weekday workload, time of occurrence, etc. A unit's historical caseload can be adjusted for hypothetical or expected conditions (e.g. new mariners) so as to forecast future SAR activity. Once the caseload is prepared and the different

### STATION SEA URCHIN

SAR

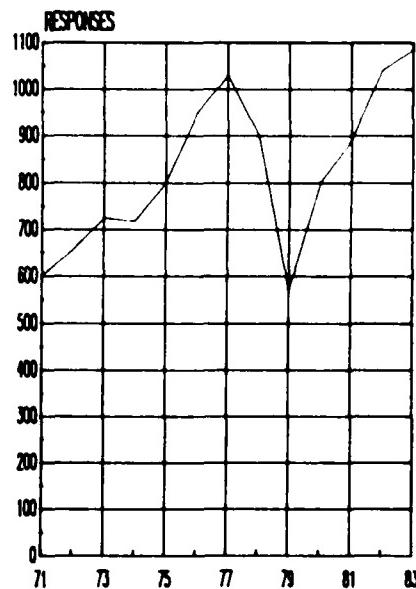


Fig 2 FY

SARQ generates cases for servicing in proportion to the historical level (unless adjusted) by considering time of day, day of week, case severity, time to complete case, and the number of sorties per case. Cases which cannot be serviced due to non-availability of resources are "queued"—in effect, put in a waiting line. Cases of low severity are "bumped" if the responding resource is needed for a more urgent case. The results are the expected number of sorties "bumped" and "queued" for the time period under consideration broken out by high and low severity, and a resource utilization table as shown in Figure 3. What is readily apparent is the degree to which a station's response performance improves or deteriorates as readiness conditions are changed.

# STATION SEA URCHIN

Summer Season, May - October

## Queuing Statistics

Scenario	Expected # of Sorties Queued		
	Severe	Non-severe	Bumped
2 BO full time	1.9	27.6	3.1
1 BO full time	5.8	38.3	4.5
1 BO 1000-2100 weekdays and full time weekends			
1 BO full time	6.6	42.4	6.2
1 B2 weekdays and BO weekends			
1 BO full time	19.3	68.5	11.9

## Boat Utilization

Scenario	Percentage of Time Underway	
	Boat #1	Boat #2
2 BO full time	19.0%	5.5%
1 BO full time	19.5%	5.0%
1 BO 1000-2100 weekdays and full time weekends		
1BO full time	21.3%	3.2%
1 B2 weekdays and BO weekends		
1 BO full time	24.5%	

17% of all sorties are on cases that are determined to be severe (Actual Severity of Incident = 2 or 3).

### Fig 3

There are no tolerance standards to measure queuing levels against. Each station's queuing should be evaluated along with regional factors such as average water temperature, normal climatic conditions, expected Auxiliary support, and type of assistance required in order to determine an effective readiness posture. The degree of high severity

queuing should be closely looked at and, if excessive, consideration given to increasing readiness capabilities.

For further information, please contact LCDR Bill Bannister of the Search and Rescue Division's Information System Staff (FTS 426-1951). 



## KUDO CORNER



# THE GOLD LIFESAVING MEDAL



GOLD LIFESAVING MEDAL

The Gold Lifesaving Medal was established by Act of Congress (14 USC 500) in 1874 for "any person who rescues or endeavors to rescue any other person from drowning, shipwreck, or other peril of the water . . . if such rescue is made at the risk of one's own life and evidences extreme and heroic daring, the medal shall be gold . . ." More specifics regarding the Lifesaving Medals are contained in Chapter 4 of COMDTINST M1650.25, Medals and Awards Manual. Since its establishment, 621 Gold Lifesaving Medals have been awarded, most to private citizens; service personnel are usually recommended for the Coast Guard Medal for similar acts of heroism performed in line of duty.

The latest Gold Lifesaving Medal to be approved was on 9 October 1984, for Mr. Douglas Peace. It happened in the Gulf of Mexico on the morning of 10 November 1983. Mr. Peace, a crewmember onboard the M/V CASEY CHOUEST, observed a survivor of the capsized M/V LAVERNE HERBERT clinging to the vessel's jackstaff protruding out of the water. As the CASEY CHOUEST maneuvered closer, the survivor dropped into the water and began swimming

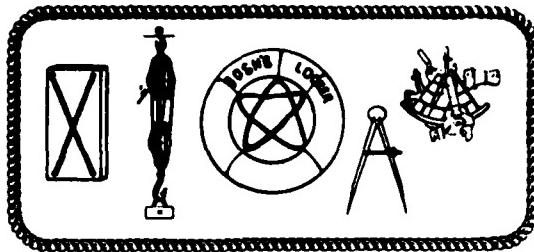
toward the rescue vessel. He suddenly stopped swimming, apparently due to exhaustion, and began to slip below the storm-tossed waters. With total disregard for his own safety, Mr. Peace dove from the bow of the CASEY CHOUEST in a valiant attempt to rescue the man.

Fighting the enormous seas and blinded by the wind and spray, Mr. Peace struggled to find the man, frequently looking back to his shipmates who were screaming directions. As one particularly large sea passed beneath him, Mr. Peace saw the man on the face of the next sea. As Mr. Peace swam over to the man, he again began to sink below the surface. In a desperate move, Mr. Peace did a surface dive, swam below the waves, grasped the man, and struggled to the surface with him.

The next few minutes saw Mr. Peace struggling to tow the man back to the CASEY CHOUEST. Just as they were ready to be pulled from the water, the vessel was hammered by successive, large beam seas. The sea drove the two men beneath the surface and under the *chine* of the CASEY CHOUEST. The survivor was torn from the arms of Mr. Peace who was battered by the hull of the vessel. Despite his own injuries, and safety being at hand, Mr. Peace repeatedly dove beneath the surface in frustrating and unsuccessful attempts to find the man. Suffering from injuries, exhaustion, and hypothermia, Mr. Peace was finally ordered to abandon his efforts and was hauled aboard the CASEY CHOUEST by his shipmates.

Mr. Peace's repeated unselfish actions and valiant service, despite imminent personal danger, reflect the highest credit upon himself and are in keeping with the highest traditions of the sea and humanitarian service.





## SAR INCIDENT DE-BRIEF

Maintaining the operational readiness of our SAR boat crews is the goal of all our training in the Search and Rescue field. One useful method of conducting training is the debriefing of the boat crews after each duty day. The objective of the debrief being not to find fault but to define problems and discover solutions that could be of use to the whole crew. In that spirit, we present the following description of a case that obviously didn't go right.

The trouble started as soon as our boat arrived on scene. While preparing to pull a twenty-seven foot pleasure craft off of a bar where it was hard aground, the cox'n of a twenty-one foot utility boat (UTL) put his own boat aground. The crewmen waded in the water to push it off. Then things got worse. In order to attach the towline the operator had to come and fetch it and walk it over to his grounded vessel, a unique and little used method, but creative.

After they got the towline hooked up and started to pull the boat off the sandbar it quickly became apparent to everyone except the crew that they did not have power to get the job done. The cox'n continued trying to pull it off; thinking that the solution to the problem was to change the angle of pull, he changed it, causing the UTL to take on water over the port quarter. To compensate, the cox'n turned the UTL to port, bringing on the flood and capsizing it.

Is there such a thing as a routine accident? Is there a recipe for accidents — put together the right ingredients and you have "instant accident?" It seems so at times. In this incident there were three ingredients; Number one — a lack of knowledge about Coast Guard Non-Emergency SAR policy. The response was contrary to both COMDT and District instructions for the handling of non-emergency SAR. Commercial salvage operators were not only available, but were on scene in time to help unscramble the mess.

Number two — a lack of experience and training in the handling of the boat used in the rescue, and a complete lack of experience in the type of operation attempted. None of the crew on board had any previous training or experience in this type of operation. Although when the cox'n was certified, there was no task requirement to refloat the grounded vessel, some training and reference to the Boat Crew Seamanship Manual would have helped. The BCSM has an excellent section (12.E.14) on pulling free grounded vessels. Among the items covered that would have been pertinent to this case are—taking soundings when making your approach and pulling the boat in the opposite direction from which it went aground. Along with the lack of training in the specific operation our people were also not aware of their boat limitations or capabilities, which in this case is the small outboard's penchant for squatting in the stern with its subsequent lowering of the freeboard aft whenever a heavy load is applied.

Number three — the operation was attempted with what proved to be too little boat for the job. This led to a couple of errors in judgement. First, not securing from the towing operation when it became apparent that the grounded vessel was not going to move, and second, attempting to maneuver the UTL while there was a load on. If the cox'n wished to continue the operation he should have removed power slowly, then straightened out the angle.

I will try to present one or two such incidents as the one above in each issue of "ON SCENE". If you know of any incidents, or have a good idea on how to prevent an accident from happening, send along a note to CWO J. P. MILLER at G-OSR-1. "ON SCENE" is, when all is said and done, a forum for and about YOU. Don't be afraid to use it.



## OBA Update

**Editor's Note:** Many inquiries have been submitted concerning the decision to remove Oxygen Breathing Apparatuses (OBAs) from the 41-foot

Utility Boat (UTB) and the 44-foot Motor Lifeboat (MLB). (Technically, OBAs have never been authorized for the 41-foot UTB.)

The following is an excerpt of a letter that Coast Guard Headquarters Search and Rescue Division has sent in reply to one such inquiry from a concerned district commander. The excerpt explains why the decision was made and, indirectly, gives some of the reasons for rejecting Scott Air Packs and their equivalents.

Although it may at first seem contradictory, the decision to remove the OBAs was made to protect boat crew members rather than expose them to hazardous environments. Properly operating an OBA requires great proficiency. If the OBA is improperly worn or if the oxygen cannister is improperly lit off, the OBA is extremely dangerous to the wearer when in a toxic environment.

Historically, many units running 41- and 44-footers have not had much operational demand for the OBA. Consequently, little emphasis has usually been placed on OBA training. Although careful periodic preventive maintenance is mandated, it is dangerously often neglected. For these reasons, the OBA has been removed from boat outfit lists.

The Coast Guard policy for responding to chemical spills and fires remains unchanged; operating units will comply with statutory responsibilities according to their capabilities. Viewed in this light, the 41-foot UTB and the 44-foot MLB appear to possess minimal capabilities to safely combat a chemical spill or fire.

How much could a typical three-man boat crew do if an OBA or even more sophisticated equipment were

available? Without an OBA backup man and a safety line tender, the 41- or 44-footer offers very limited assistance in fighting fires.

Providing more than a minimal response would require:

**an augmented boat crew,  
proper equipment and  
extensive damage control training.**

With existing Seamanship, MLE and SAR training requirements, it is generally unreasonable to expect extensive or sustained performance during chemical casualties from the relatively junior enlisted personnel who comprise the vast majority of our boat crews. Each response, however, must be evaluated on a case-by-case basis.

Certain units may have valid needs to respond to chemical spills and waterfront fires. At least one district maintains a program in which each boat crew member draws one SCBA (Self-Contained Breathing Apparatus) from a shore facility before responding. It should be noted that SCBAs alone may not provide boat crews with all the protection they need in certain toxic environments, i.e. chemical spills and fires.

Also needed are personal protective clothing ensembles, which cannot be routinely carried on a Utility Boat; these too should be drawn from shore facilities. Finally, specialized damage control is not normally covered in existing boat crew training programs but is critical to chemical spill- and fire-fighting operations.



# Auxiliarist Achieves Above Average

## Hats Off To JOE CAPOZZI



by Frank J. Milio, Flotilla 10-8  
(Third Northern), USCG Auxiliary

Once in a great while, a US Coast Guard Auxiliarist steps forth to accept challenges, to heed the call and to fulfill his vows and responsibilities above and beyond the average. SEMPER PARATUS—Always Ready: what a wonderful motto, so exemplified by the following achievements of one of the Coast Guard's most dedicated and active Auxiliarists.

On 27 May 1984 at 1230, Joe Capozzi, aboard his vessel the "Lady D." answered a distress call concerning a downed helicopter 1.5 miles north of the Englewood Yacht Basin on the Jersey side of the Hudson River. Captain Capozzi immediately proceeded to the area and rescued two men from the choppy waters. The men were delivered to the Englewood Boat Basin, served hot coffee and given dry clothing. Shortly thereafter, they made arrangements for the salvaging of the aircraft.

Later, on 27 Sept. 1984 at 2200, Joe Capozzi answered a phone call from the US Coast Guard to rendezvous the following day with Lt. Ketcham of the New York State Police and Senior Chief Petty Officer Capper of the Coast Guard. The three men planned to assist in the search for a submerged automobile which allegedly contained the body of a state trooper.

Skipper Capozzi arrived on scene following day to meet the two men, who along sonar equipment to aid in the search men them began to criss-cross the vicinity which had been dumped in about 40 feet.

With use of the sonar equipment, two the New York State Police Academy automobiles in the murky and turbulent waters of Hell's Gate. The area is hazardous to many boaters know well, due to its strong eddies. Winds were bellowing at 20 mph and was so strong that each diver had to use hold-on rope during his search.

The conditions required expert handling "Lady D" by Captain Capozzi to maintain contact with the two divers. The divers located the salvage team dropped a floating marker as a marker to permit further search in hazardous weather and swirling waters, team began to suspend operations awaiting conditions.

Suddenly, one diver lost his hold and was carried away, unable to fight the current and waters. The cry went out: "Diver in trouble carried away." Captain Capozzi immediately turned his boat around, gave chase and managed to bring the diver, who had been swept one-fourth from the search area.

The diver was exhausted and unable to get aboard Capozzi's boat. Senior Chief Captain Capozzi secured the diver to the swimming Captain Capozzi bringing the vessel back to the waters—and, with the help of Lt. Ketcham, brought him aboard.

Captain Capozzi had maneuvered his vessel for over a half hour in dangerous waters. Had it not been for his alertness and skill in saving the life of a state trooper who drowned were it not for the alertness of the vessel. This action is just another excellent performance by Captain Capozzi.

Once again: a salute to Joe Capozzi, Auxiliarist who serves well.



## A Few More Thoughts on Water Survival: Effects of Buoyancy

By CDR A. M. "Doc" Steinman, USPHS / USCG

In the Summer 1984 issue of ON SCENE, I discussed survival swimming—the ability to keep your head above water no matter what the sea state—and the important part that periodic, realistic open-water training plays in developing the necessary skills and confidence for this situation. In the current issue, I address buoyancy and some of our recent findings on its relationship to survival in rough seas.

Bouyancy is simply the sum of the forces keeping you afloat in the water. Your body has several natural sources of buoyancy (air in your lungs, air in your intestines and fat), but these are not nearly enough to assure your prolonged survival in cold, rough seas.

We were all taught in our basic training how to drownproof—assuming a dead-man's float while holding your breath for five seconds—in order to conserve energy, take advantage of your natural buoyancy and thus prolong your survival. Unfortunately this is a very bad idea in cold water (i.e. below 70 degrees Fahrenheit), since immersing your head will dramatically increase your cooling rate and thus shorten your survival time. Supplemental buoyancy is necessary—your personal floatation device (PFD).

Most Coast Guard crewmen are familiar with the various types of floatation devices, so I won't spend time describing them here. Rather, I'd like to emphasize a simple law of survival related to buoyancy: the more buoyancy you have, the better are your chances for survival. This seemingly obvious point is often misunderstood, so what you think is enough buoyancy may not be enough to keep you alive.

Several recent mishaps involving Coast Guardsmen illustrate the potential problems with insufficient buoyancy in rough seas. In one case a crewman quickly drowned in heavy seas while wearing a work vest Type III PFD. Although he was a poor swimmer with no survival swimming skills, one might have expected the crewman's life jacket, the 16 pounds of buoyancy of which could easily have kept him afloat in

calm water, to have protected him. It failed because the mishap didn't occur in calm water. It occurred in surf.

In another case a Coast Guard crewman was wearing an anti-exposure coverall (about 18 pounds of buoyancy). He too was trying to survive surf conditions after being thrown overboard during a SAR case. He was unable to orally inflate the suit's supplemental floatation pillow because his hands were occupied with survival swimming and trying to keep his head afloat. Because of his training and level of fitness, the crewman was able to fight the seas long enough to be rescued by helo.

The buoyancy of the crewman's coveralls (without the flotation pillow) was inadequate, however, for the surf he was in. At the time of the rescue, he was totally exhausted and virtually helpless from his swimming efforts. Had he not been rescued as quickly, he too would probably have drowned despite his floatation device.

In our recent hypothermia experiments in both calm and rough seas, the float coat (about 16 pounds of buoyancy) was found to be inadequate for prolonged survival in the moderate sea conditions of the tests (four- to five-ft. swells, two- to three-ft. wind chop, zero- to three-knot current and 50-degree-Fahrenheit water). One volunteer crewman, in excellent physical condition and a superb swimmer with experience in rough seas, became so fatigued in fighting the seas that he had to be removed from the water after 40 minutes. The buoyancy of his float coat was not enough to permit him to comfortably ride the seas and keep his head afloat.

These cases and others led to the recent publication of a Commandant's Notice (COMDTNOTE 10470, dated 25 July 1984) titled "Buoyancy and Protective Clothing Recommendations for Survival in Rough Seas." This COMDTNOTE warns you about the limitations of Type III Personal Floatation Devices and the importance of properly fitting protective clothing for prolonged survival (longer than 30 minutes) in



adverse sea conditions. I recommend that you read this COMDTNOTE closely, for it contains important information on survival.

For those readers who do not have easy access to Coast Guard Commandant's Notices, the following excerpts are provided:

"Life jackets or flotation garments which only provide about 15-17 pounds of buoyancy (e.g. float coats or other Type III devices) proved inadequate to keep test subjects comfortably afloat for periods exceeding approximately 30 minutes . . . in rough seas. Even though the test subjects were physically fit, good swimmers and experienced in rough-water survival, they became exhausted in a short period of time keeping their heads clear of the water while combatting four- to six-ft. swells and two- to three-ft. wind chop. These subjects did not experience similar problems with garments or life jackets providing buoyancy greater than about 17 pounds (e.g. inflatable life jackets, anti-exposure coveralls, wet suits etc.). Coast Guard personnel who are not as physically fit could expect to have even more difficulty in rough seas.

**"These findings suggest that Coast Guard personnel should only wear float coats or other Type III devices in non-hazardous conditions when the risk of accidentally falling overboard is minimal or when the probability of rapid**

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**FM: CDR A. M. "Doc" Steinman, USPHS / USCG**

**TO: All Members of the Coast Guard Team**

In order to execute, from 15 April to 15 May 1984, the first half of a Coast Guard project to test various types of anti-exposure garments, we on the experiment team needed volunteers. We enjoyed the good fortune to gather a fine group of Coasties to the Station Cape Disappointment, Washington test site.

Much valuable information was obtained, thanks largely to the efforts of the volunteers who donned anti-exposure garments and entered the chill water.

These men deserve recognition for their participation in the study. Their contribution was the primary reason our experiment succeeded. They endured a lot of discomfort and took some risks so that we could improve our operational clothing and better understand the problems of sea survival.

Among the volunteers were:

ASM1 Rob McBicker, (then) CGAS Astoria, Oregon (now) AS Kodiak, Alaska

recovery is high. These recommendations are already incorporated in the Coast Guard Rescue and Survival Systems Manual, COMDTINST M10470.10A (Chapter 5, Paragraph B2 and Chapter 7, Paragraph C3) . . . .

"These findings are particularly pertinent to boarding parties or other Coast Guard personnel wearing law-enforcement equipment, since the additional weight of this equipment will aggravate the situation in rough seas. Law-enforcement personnel should consider increasing the amount of buoyancy worn for boarding operations in rough seas (i.e. wearing Type I device or wearing both a Type III device with either a wet suit or anti-exposure coverall)."

A major, intensive effort is currently in progress to develop for boat crewmen a new inflatable life jacket similar to that worn by aircrewmen. Once inflated its buoyancy will exceed 22 pounds, which will greatly improve survival in rough seas.

Furthermore, a parallel effort is in progress to develop for boat crewmen new anti-exposure, waterproof coveralls which will not only provide protection against cold wind, rain and spray, but which will also provide adequate protection against immersion hypothermia in cold seas.



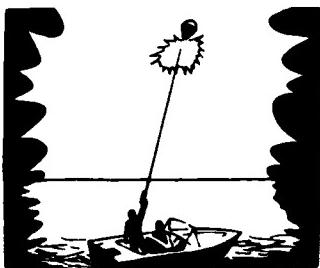
MK2 Bob Beck, CG STA Umpqua River, Ore.  
AD3 John Mattulat, AS Port Angeles, Washington  
BM3 (now BM2) John Prentice, Sta Grays Harbor, Wash.

MK3 Kelly McAdams, STA Cape Disappointment, Wash.

MK3 Ken Serven, STA Yaquina Bay, Ore.  
SN Mike Gunderson, CG National Motor Lifeboat School (Cape D.)

SN Gabriel Buckley, (then) STA Cape D.  
FN Barry Brown, STA Cape D.  
FN Steve Smagacz, STA Siuslaw River, Ore.

MK2 Beck, BM3 Prentice, SN Gunderson and Fn Brown also deserve recognition for their volunteer efforts in another study, one which tested anti-exposure garments in cold air during Aug 84.



## SAR Highlights

The following deficiencies have been identified as possibly plaguing the six-meter Rigid Hull Inflatable Boats (RHIBs) 19300-19407. (All RHIBs, however, should be checked.) The output ends of steering cables are corroding prematurely, leading to potential seizing of the steering system. The outer sheathing on electrical cables for engine and lighting systems is cracking, exposing internal wires. The exterior surfaces of fuel hoses are cracking and splitting, and rubber cores are degrading, clogging lines and filters.



ON SCENE is still looking for SAR photos and articles (any length) for possible publication. All materials can be returned upon request. Future submissions should be sent to G-OSR-1.

Possible outboard motor deficiencies have been identified for both the six-meter RHIBs and certain non-standard small boats. The motors are built by Outboard Marine Corporation (OMC) as Johnson or Evinrude, 65- and 70-horsepower, 1984 models. Sea water is entering the power head and lower gear unit. The lower unit water-flow tube, timing reference plate and lower trunion cover plate vibrate loose. Electronic revolution limiters fail to act properly. Steering tubes are corroding prematurely. Reversing latch springs are weak. All such motors should be checked and, when needed, returned for warranty claims.

**Dear ON SCENE Editor,**

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